

SEQUENCE LISTING

<110> VAISVILA, ROMUALDAS

MORGAN, RICHARD D.

KUCERA, REBECCA B.

CLAUS, TOBY E.

RALEIGH, ELISABETH A.

<120> METHOD FOR CLONING AND PRODUCING THE MseI RESTRICTION
ENDONUCLEASE

<130> NEB-181

<140>

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<170> PatentIn Ver. 2.0

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<212> DNA

<213> Micrococcus sp.

<220>

<221> CDS

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Glu Ala Asp Asn Leu Asp Phe Ile Gln Thr Leu Pro Asp Ala Ser Phe	
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cga atg atc tac atc gat ccg ccg ttc aac aca ggg cga acg cag ccg	144
Arg Met Ile Tyr Ile Asp Pro Pro Phe Asn Thr Gly Arg Thr Gln Arg	
35 40 45	

ctt cag tcg ctc aag acg acc cgc tcg gtc aca ggg tcg cga gtc ggc	192
Leu Gln Ser Leu Lys Thr Thr Arg Ser Val Thr Gly Ser Arg Val Gly	
50 55 60	

ttc aaa ggc cag acg tac gac acg gtc aag agc act ctg cac tcg tat	240
Phe Lys Gly Gln Thr Tyr Asp Thr Val Lys Ser Thr Leu His Ser Tyr	

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	85	90	95	
gag gct tgg cgg ttg ctc acc cct gac ggc gcg ctc tat ctt cat ctg				336
Glu Ala Trp Arg Leu Leu Thr Pro Asp Gly Ala Leu Tyr Leu His Leu				
	100	105	110	
gat tac cgc gag gtt cac tac gcc aag gtc gtc ctc gac gcg atg ttc				384
Asp Tyr Arg Glu Val His Tyr Ala Lys Val Val Leu Asp Ala Met Phe				
	115	120	125	
gga cgc gaa agc ttc ctg aac gag ctg atc tgg gcg tac gac tac ggc				432
Gly Arg Glu Ser Phe Leu Asn Glu Leu Ile Trp Ala Tyr Asp Tyr Gly				
	130	135	140	
gcg cgc tgc aag agc aag tgg ccc acc aag cac gac aac atc ctc gtg				480
Ala Arg Ser Lys Ser Lys Trp Pro Thr Lys His Asp Asn Ile Leu Val				
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tat gtg aag gac ccg aac aac tac gtc tgg aac ggt cag gat gta gat				528
Tyr Val Lys Asp Pro Asn Asn Tyr Val Trp Asn Gly Gln Asp Val Asp				
	165	170	175	
cgc gag ccc tac atg gcg ccc ggg ctc gtt aca ccc gag aag gta gcg				576
Arg Glu Pro Tyr Met Ala Pro Gly Leu Val Thr Pro Glu Lys Val Ala				
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Leu Gly Lys Leu Pro Thr Asp Val Trp Trp His Thr Ile Val Pro Pro				
	195	200	205	
gcg agc aaa gag cgc acc ggg tac gcg aca cag aag ccg gtc ggc atc				672
Ala Ser Lys Glu Arg Thr Gly Tyr Ala Thr Gln Lys Pro Val Gly Ile				
	210	215	220	
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Ile Arg Arg Met Ile Gln Ala Ser Ser Asn Glu Gly Asp Trp Val Leu				
	225	230	235	240
gat ttc ttc gct ggt agt ggg acg acc ggc gcc gcg gcc cgc cag ctc				768
Asp Phe Phe Ala Gly Ser Gly Thr Thr Gly Ala Ala Ala Arg Gln Leu				
	245	250	255	
gga cgc cgt ttt gtg ctc gta gac gtc aac cca gaa gca atc gcg gta				816
Gly Arg Arg Phe Val Leu Val Asp Val Asn Pro Glu Ala Ile Ala Val				

260 265 270

atg gca aaa cgg ttg gat gac ggg gca ttg gac acc agc gtg acg atc 864
 Met Ala Lys Arg Leu Asp Asp Gly Ala Leu Asp Thr Ser Val Thr Ile
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<212> PRT

<213> Micrococcus sp.

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 20 25 30

Arg Met Ile Tyr Ile Asp Pro Pro Phe Asn Thr Gly Arg Thr Gln Arg
 35 40 45

Leu Gln Ser Leu Lys Thr Thr Arg Ser Val Thr Gly Ser Arg Val Gly
 50 55 60

Phe Lys Gly Gln Thr Tyr Asp Thr Val Lys Ser Thr Leu His Ser Tyr
 65 70 75 80

Asp Asp Ala Phe Thr Asp Tyr Trp Ser Phe Leu Glu Pro Arg Leu Leu
 85 90 95

Glu Ala Trp Arg Leu Leu Thr Pro Asp Gly Ala Leu Tyr Leu His Leu
 100 105 110

Asp Tyr Arg Glu Val His Tyr Ala Lys Val Val Leu Asp Ala Met Phe
 115 120 125

Gly Arg Glu Ser Phe Leu Asn Glu Leu Ile Trp Ala Tyr Asp Tyr Gly
 130 135 140

Ala Arg Ser Lys Ser Lys Trp Pro Thr Lys His Asp Asn Ile Leu Val
 145 150 155 160

Tyr Val Lys Asp Pro Asn Asn Tyr Val Trp Asn Gly Gln Asp Val Asp

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180	185	190
Leu Gly Lys Leu Pro Thr Asp Val Trp Trp His Thr Ile Val Pro Pro		
195	200	205
Ala Ser Lys Glu Arg Thr Gly Tyr Ala Thr Gln Lys Pro Val Gly Ile		
210	215	220
Ile Arg Arg Met Ile Gln Ala Ser Ser Asn Glu Gly Asp Trp Val Leu		
225	230	235
Asp Phe Phe Ala Gly Ser Gly Thr Thr Gly Ala Ala Ala Arg Gln Leu		
245	250	255
Gly Arg Arg Phe Val Leu Val Asp Val Asn Pro Glu Ala Ile Ala Val		
260	265	270
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Thr Ser Leu His Leu Glu Ser Val Val Thr Glu Gly Ala Glu Ser Pro	
20 25 30	

cct aat cgt ctg att tgg gcg gac aac ctg ccg cta atg gta gat ttg	144
Pro Asn Arg Leu Ile Trp Ala Asp Asn Leu Pro Leu Met Val Asp Leu	
35 40 45	
ttg gcc gaa tat gaa ggg aaa atc gat ctg atc tac gcc gat ccc cct	192
Leu Ala Glu Tyr Glu Gly Lys Ile Asp Leu Ile Tyr Ala Asp Pro Pro	
50 55 60	
ttt ttt acg gat cgt act tat gcg gcg cga att ggt cat ggg gag gat	240
Phe Phe Thr Asp Arg Thr Tyr Ala Ala Arg Ile Gly His Gly Glu Asp	
65 70 75 80	
tcg cgt cgt cca caa acc tgg cag ctt gca gaa gga tat acg gac gag	288
Ser Arg Arg Pro Gln Thr Trp Gln Leu Ala Glu Gly Tyr Thr Asp Glu	
85 90 95	
tgg aag gat tta gat gaa tac ctg gac ttc ctt tat cca cgc ctg gta	336
Trp Lys Asp Leu Asp Glu Tyr Leu Asp Phe Leu Tyr Pro Arg Leu Val	
100 105 110	
ctg atg tat cga ctg ctg gca cca cac gga acg ctc tac ttg cac ctg	384
Leu Met Tyr Arg Leu Leu Ala Pro His Gly Thr Leu Tyr Leu His Leu	
115 120 125	
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Asp Trp His Ala Asn Ala Tyr Val Arg Val Leu Leu Asp Glu Ile Phe	
130 135 140	
ggg cga cag cgg ttt ctc aac gag atc gtc tgg atc tat cac ggc ccc	480
Gly Arg Gln Arg Phe Leu Asn Glu Ile Val Trp Ile Tyr His Gly Pro	
145 150 155 160	
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Ser Ala Ile Arg Arg Ala Phe Lys Arg Lys His Asp Thr Ile Leu Val	
165 170 175	
tat gtg aaa ggt gaa aac tat aca ttc aat gcg gat gcg gtt cgt caa	576
Tyr Val Lys Gly Glu Asn Tyr Thr Phe Asn Ala Asp Ala Val Arg Gln	
180 185 190	
cct tac cat ccg agc acn cat aag acc ttc gct tcc tcc ccg aag gcc	624
Pro Tyr His Pro Ser Xaa His Lys Thr Phe Ala Ser Ser Pro Lys Ala	
195 200 205	
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Gly Phe Gly Lys Val Pro Asp Leu Gln Arg Gly Lys Val Pro Glu Asp	
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245 250 255	
tcc tcg aac gca ggc gat ctg gtg gca gac ttc ttc tgc ggc tca ggg	816
Ser Ser Asn Ala Gly Asp Leu Val Ala Asp Phe Phe Cys Gly Ser Gly	
260 265 270	
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Thr Thr Ala Val Val Ala Ala Arg Leu Gly Arg Arg Phe Leu Val Asn	
275 280 285	
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Asp Ala Ser Trp Arg Ala Val His Val Thr Arg Thr Arg Leu Leu Arg	
290 295 300	
gag gga gta agt ttc act ttt gaa cgc cag gaa act ttt act cta cct	960
Glu Gly Val Ser Phe Thr Phe Glu Arg Gln Glu Thr Phe Thr Leu Pro	
305 310 315 320	
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Ile Gln Pro Leu Pro Pro Asp Trp Leu Ile Ile Ala Glu Glu Gln Ile	
325 330 335	
cgc ctc caa gca ccc ttt ctc gta gat ttt tgg gaa gtg gac gat caa	1056
Arg Leu Gln Ala Pro Phe Leu Val Asp Phe Trp Glu Val Asp Asp Gln	
340 345 350	
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Trp Asp Gly Lys Ile Phe Arg Ser Arg His Gln Gly Leu Arg Ser Arg	
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Leu	Ala	Glu	Tyr	Glu	Gly	Lys	Ile	Asp	Leu	Ile	Tyr	Ala	Asp	Pro	Pro
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Phe	Phe	Thr	Asp	Arg	Thr	Tyr	Ala	Ala	Arg	Ile	Gly	His	Gly	Glu	Asp
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Ser	Arg	Arg	Pro	Gln	Thr	Trp	Gln	Leu	Ala	Glu	Gly	Tyr	Thr	Asp	Glu
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Trp	Lys	Asp	Leu	Asp	Glu	Tyr	Leu	Asp	Phe	Leu	Tyr	Pro	Arg	Leu	Val
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		115					120					125			
Asp	Trp	His	Ala	Asn	Ala	Tyr	Val	Arg	Val	Leu	Leu	Asp	Glu	Ile	Phe
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Ser Ser Asn Ala Gly Asp Leu Val Ala Asp Phe Phe Cys Gly Ser Gly
260 265 270

Thr Thr Ala Val Val Ala Ala Arg Leu Gly Arg Arg Phe Leu Val Asn
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Asp Ala Ser Trp Arg Ala Val His Val Thr Arg Thr Arg Leu Leu Arg
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Glu Gly Val Ser Phe Thr Phe Glu Arg Gln Glu Thr Phe Thr Leu Pro
305 310 315 320

Ile Gln Pro Leu Pro Pro Asp Trp Leu Ile Ile Ala Glu Glu Gln Ile
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Arg Leu Gln Ala Pro Phe Leu Val Asp Phe Trp Glu Val Asp Asp Gln
340 345 350

Trp Asp Gly Lys Ile Phe Arg Ser Arg His Gln Gly Leu Arg Ser Arg
355 360 365

Leu Gln Glu Gln Ala Pro Leu Ser Leu Pro Leu Thr Gly Asn Gly Leu
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Gly Arg Ala Asp Ser Pro His Pro Val Ser Phe
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<223> Description of Unknown Organism: ENVIRONMENTAL DNA

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Ala Asp Asn Met Glu Val Leu Arg Gly Leu Pro Ala Ala Ser Val Asp	
20 25 30	
ctg atc tac atc gat cct ccg ttc aac acc gga aag gtt cag gag cgc	144
Leu Ile Tyr Ile Asp Pro Pro Phe Asn Thr Gly Lys Val Gln Glu Arg	
35 40 45	
act cag ctc aaa acg gtg cgc tcc gag tgg ggc gat cgc gtc gga ttc	192
Thr Gln Leu Lys Thr Val Arg Ser Glu Trp Gly Asp Arg Val Gly Phe	
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cag ggc cgt cgc tac gaa agc atc gtc gtg ggt aag aag cgc ttt acc	240
Gln Gly Arg Arg Tyr Glu Ser Ile Val Val Gly Lys Lys Arg Phe Thr	
65 70 75 80	
gac ttc ttc gac gac tat ctg gct ttc ctg gaa ccg cgc ctg gtc gaa	288
Asp Phe Phe Asp Asp Tyr Leu Ala Phe Leu Glu Pro Arg Leu Val Glu	
85 90 95	
gcc cat cgt gtt ctg gcg ccg cac ggg tgc ctc tac ttt cac gtc gac	336
Ala His Arg Val Leu Ala Pro His Gly Cys Leu Tyr Phe His Val Asp	
100 105 110	
tac cgc gag gtg cac tac tgt aag gtc ctt ctt gac ggc atc ttc ggt	384
Tyr Arg Glu Val His Tyr Cys Lys Val Leu Leu Asp Gly Ile Phe Gly	
115 120 125	
cgc gag gcc ttt ctc aac gag atc atc tgg gcc tac gat tac ggc ggg	432
Arg Glu Ala Phe Leu Asn Glu Ile Ile Trp Ala Tyr Asp Tyr Gly Gly	
130 135 140	
cgt ccg aag gac agg tgg cct cct aag cac gac aac atc ctg ctc tac	480
Arg Pro Lys Asp Arg Trp Pro Pro Lys His Asp Asn Ile Leu Leu Tyr	
145 150 155 160	
gcc aag act ccc ggt cgc cac gtg ttc aat gcg gac gaa atc gag cgc	528
Ala Lys Thr Pro Gly Arg His Val Phe Asn Ala Asp Glu Ile Glu Arg	
165 170 175	
att ccc tac atg gct ccg ggc ctg gtt ggc ccc gaa aag gca gcc cgt	576

Ile Pro Tyr Met Ala Pro Gly Leu Val Gly Pro Glu Lys Ala Ala Arg
 180 185 190

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 Gly Lys Leu Pro Thr Asp Thr Trp Trp His Thr Ile Val Pro Thr Ser
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 210 215 220

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 Arg Arg Ile Val Gln Ala Ser Ser His Pro Gly Ala Val Val Leu Asp
 225 230 235 240

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 Arg Arg Phe Ile Leu Val Asp Asn His Pro Glu Ala Leu Gln Val Met
 260 265 270

gcc agg cgc ttc gac ggc atc gag ggg atc gaa tgg gtg ggc ttc gat 864
 Ala Arg Arg Phe Asp Gly Ile Glu Gly Ile Glu Trp Val Gly Phe Asp
 275 280 285

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 Gln Gly Arg Arg Tyr Glu Ser Ile Val Val Gly Lys Lys Arg Phe Thr
 65 70 75 80
 Asp Phe Phe Asp Asp Tyr Leu Ala Phe Leu Glu Pro Arg Leu Val Glu
 85 90 95
 Ala His Arg Val Leu Ala Pro His Gly Cys Leu Tyr Phe His Val Asp
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 Tyr Arg Glu Val His Tyr Cys Lys Val Leu Leu Asp Gly Ile Phe Gly
 115 120 125
 Arg Glu Ala Phe Leu Asn Glu Ile Ile Trp Ala Tyr Asp Tyr Gly Gly
 130 135 140
 Arg Pro Lys Asp Arg Trp Pro Pro Lys His Asp Asn Ile Leu Leu Tyr
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 Ala Lys Thr Pro Gly Arg His Val Phe Asn Ala Asp Glu Ile Glu Arg
 165 170 175
 Ile Pro Tyr Met Ala Pro Gly Leu Val Gly Pro Glu Lys Ala Ala Arg
 180 185 190
 Gly Lys Leu Pro Thr Asp Thr Trp Trp His Thr Ile Val Pro Thr Ser
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 Gly Ser Glu Lys Thr Gly Tyr Pro Thr Gln Lys Pro Leu Gly Ile Leu
 210 215 220
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 225 230 235 240
 Phe Phe Ala Gly Ser Gly Thr Thr Gly Val Ala Ala Phe Glu Leu Gly
 245 250 255
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 Ser Ala Ala Asn Leu Ala Asp Arg Tyr Val Ala Ser Glu Asp Asp Pro
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 Trp Val Gly Ser Pro Phe Glu Trp Ile Leu Arg Val Pro Ser Arg Thr
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 aag ggc gcg gtc ggt gag ctg ctc gtg agc gaa tgg gct aat gcc aaa 192
 Lys Gly Ala Val Gly Glu Leu Leu Val Ser Glu Trp Ala Asn Ala Lys
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 ggc ctc cgt gtg aag agg tcg ggg tcc agc gat gcg gac cgc gtg atc 240
 Gly Leu Arg Val Lys Arg Ser Gly Ser Ser Asp Ala Asp Arg Val Ile
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 aac ggg cat cgc atc gag atc aag atg tcg act ttg tgg aag tcc ggc 288
 Asn Gly His Arg Ile Glu Ile Lys Met Ser Thr Leu Trp Lys Ser Gly
 85 90 95
 ggc ttc aag ttt cag cag atc cgg gat cag gag tac gac ttt tgc ctc 336
 Gly Phe Lys Phe Gln Gln Ile Arg Asp Gln Glu Tyr Asp Phe Cys Leu
 100 105 110
 tgc ctt ggg atc agc ccg ttc gaa gtg cac gcg tgg ctg ctg ccc aaa 384
 Cys Leu Gly Ile Ser Pro Phe Glu Val His Ala Trp Leu Leu Pro Lys
 115 120 125

gac cta ttg ctt gag tac gtg att ggt cac atg ggt cag cac acc ggc 432
 Asp Leu Leu Leu Glu Tyr Val Ile Gly His Met Gly Gln His Thr Gly
 130 135 140

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 Tyr Asp Trp Met Arg Pro Phe Gly Gly Arg Leu Gly His Val Glu Asp
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Trp Val Gly Ser Pro Phe Glu Trp Ile Leu Arg Val Pro Ser Arg Thr
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Lys Gly Ala Val Gly Glu Leu Leu Val Ser Glu Trp Ala Asn Ala Lys
 50 55 60

Gly Leu Arg Val Lys Arg Ser Gly Ser Ser Asp Ala Asp Arg Val Ile
 65 70 75 80

Asn Gly His Arg Ile Glu Ile Lys Met Ser Thr Leu Trp Lys Ser Gly
 85 90 95

Gly Phe Lys Phe Gln Gln Ile Arg Asp Gln Glu Tyr Asp Phe Cys Leu
 100 105 110

Cys Leu Gly Ile Ser Pro Phe Glu Val His Ala Trp Leu Leu Pro Lys
 115 120 125

Asp Leu Leu Leu Glu Tyr Val Ile Gly His Met Gly Gln His Thr Gly
 130 135 140

Ala Ser Gly Ser Asp Thr Ala Trp Leu Gly Phe Pro Ala Asp Glu Pro
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<212> DNA

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